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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,621	02/25/2004	David M. Reed	03008	2048
<div>7590 Martha Ann Finnegan, Esq. Cabot Corporation 157 Concord Road Billerica, MA 01821-7001</div>				
EXAMINER				
LIAO, DIANA J				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
07/23/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/786,621

**Applicant(s)**

REED ET AL.

**Examiner**

DIANA J. LIAO

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-6, 12, 14, 16-21, 23-40 and 42-63 is/are pending in the application.
- 4a) Of the above claim(s) 23-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 12, 14, 16-21, 40 and 42-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/888)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

Art Unit: 1793

## **DETAILED ACTION**

### ***Status of Application***

Claims 1-6, 12, 14, 16-21, 40 and 42-63 are presented for examination. Claims 23-39 remain withdrawn. Amendment and remarks received 4/16/2008 have been considered.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-6, 12, 14, 16-21, 40 and 42-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimmel, et al. (US 2001/0036056).

Kimmel '056 teaches a niobium oxide powder. (para. 17) The niobium oxide is oxygen reduced to a state that is not stoichiometric, such as NbO, NbO<sub>0.7</sub>, NbO<sub>1.1</sub>, and

NbO<sub>2</sub>, and more generically a ratio of Nb:O of 1:less than 2.5, which would also encompass NbO<sub>0.5</sub>. The suboxide powder is to comprise any of those oxides or any combination thereof. (para. 28) In the process of making this powder, the getter material is preferably niobium metal, which then becomes part of the final product. (para. 38) The niobium suboxide final product is preferably a NbO, oxygen depleted NbO, or an aggregate or agglomerate which contains NbO and niobium metal. (para 36) The niobium oxide powder can be flaked, angular or nodular. (para. 17) The preferred surface area of this oxide is 0.5-10.0 m<sup>2</sup>/g. (para. 30) The size of the powders are from 40-325 mesh (para. 18), which corresponds to 44μm to 420μm and overlaps the claimed range creating a *prima facie* case of obviousness. The oxygen reduced niobium may also contain levels of nitrogen. (para. 27) Kimmel '056 shows that the main components of its oxides are suboxides, as denoted by the components listed in the XRD Major phases. In addition, sample 18 has a metal phase, as well as a major and minor phase of different suboxides. Sample 13, as another example, has three suboxide components. (Table 1) Kimmel '056 lists other elements in a sample oxide created. The oxide appears to have 530 ppm to 710 ppm of other elements. (Table 3) This corresponds to a 0.53-0.71% of impurities. Kimmel '056 also teaches a capacitor and capacitor anode comprising the valve metal suboxide. (para. 34-35)

Kimmel '056 is silent regarding phase purity, and does not specifically teach phase purities of 75%-99.95%. However, despite not making any mention of the purity of the phases, it would have been obvious or inherent to have a high phase purity. The

existence of a "phase impurity" would appear to simply create its own phase and render all phases substantially pure. Alternatively if the phase purity is the amount of the phase which is actually the niobium or niobium oxide, Kimmel '056 makes no mention of impure phases, and in the sample niobium oxide analysis, non Nb or O elements add up to 530-710 ppm, leading to a Nb + O purity of 99.29-99.47%. Kimmel '056 appears to teach a general purity which meets the claimed ranges. One would be motivated to create a highly pure phase since impurities are generally not desired in the art. Kimmel '056 deals with electrical properties which would especially be impeded or affected by the presence of impurities. Kimmel '056 teaches that the getter material should be as pure as possible generally so as to not introduce impurities into the system of preferably at least 99%. (para. 19) Therefore, the claimed phase purities are not found patentable over the prior art.

Kimmel '056 is silent about how much of the different phases are present in terms of weight percent, or the flow of the powder.

Regarding the amounts of each phase by weight in the composition, more specifically about 0.1-1% of the valve metal phase and 0.01-5% of the secondary suboxide in their most limited claimed ranges, Kimmel '056 is silent as to specific weight percents of each phase. However, Kimmel '056 does teach that certain oxides are known to have different properties, such as the resistive nature of  $\text{NbO}_2$  and conductive nature of  $\text{NbO}$  (para. 36), and it would have been routine optimization to find the right combination of suboxides. Kimmel '056 also teaches the preferable compositions to be

combinations of suboxides and/or niobium metal, as well as discloses many types of oxides attainable in Table 1. Since both the claimed invention (claims 56 and 58) and an intended use of Kimmel '056 are for a valve metal suboxide for use in a capacitor anode, it would have been obvious to have optimized the amounts of different suboxides and metal phases in the agglomerate to create an ideal anode. Therefore, the weight percents of the different phases are not found patentable over the prior art.

Regarding the flow of the powder, the flow is found to be inherent in the product given the similar particle size and surface area of the product in Kimmel '056. Flow is a property which is generally governed by friction, which is affected by particle size and the roughness of the particles. Since the surface area and the particle size of Kimmel '056 and the claimed product overlap substantially there is reason to believe that the flow properties are also similar or the same.

Therefore, due to optimization, overlap of ranges and inherency, claims 1-6, 12, 14, 16-21, 40 and 42-63 are not found patentable over the prior art.

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-22 and 40-63 have been considered but are moot in view of the new ground(s) of rejection or cancellation.

#### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hill (US 5,733,489).

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIANA J. LIAO whose telephone number is (571)270-3592. The examiner can normally be reached on Monday - Friday 8:00am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ngoc-Yen M. Nguyen/  
Primary Examiner, Art Unit 1793

DJL